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*structural*

# GF Steel Lumber

for

## Floors, Roofs and Partitions



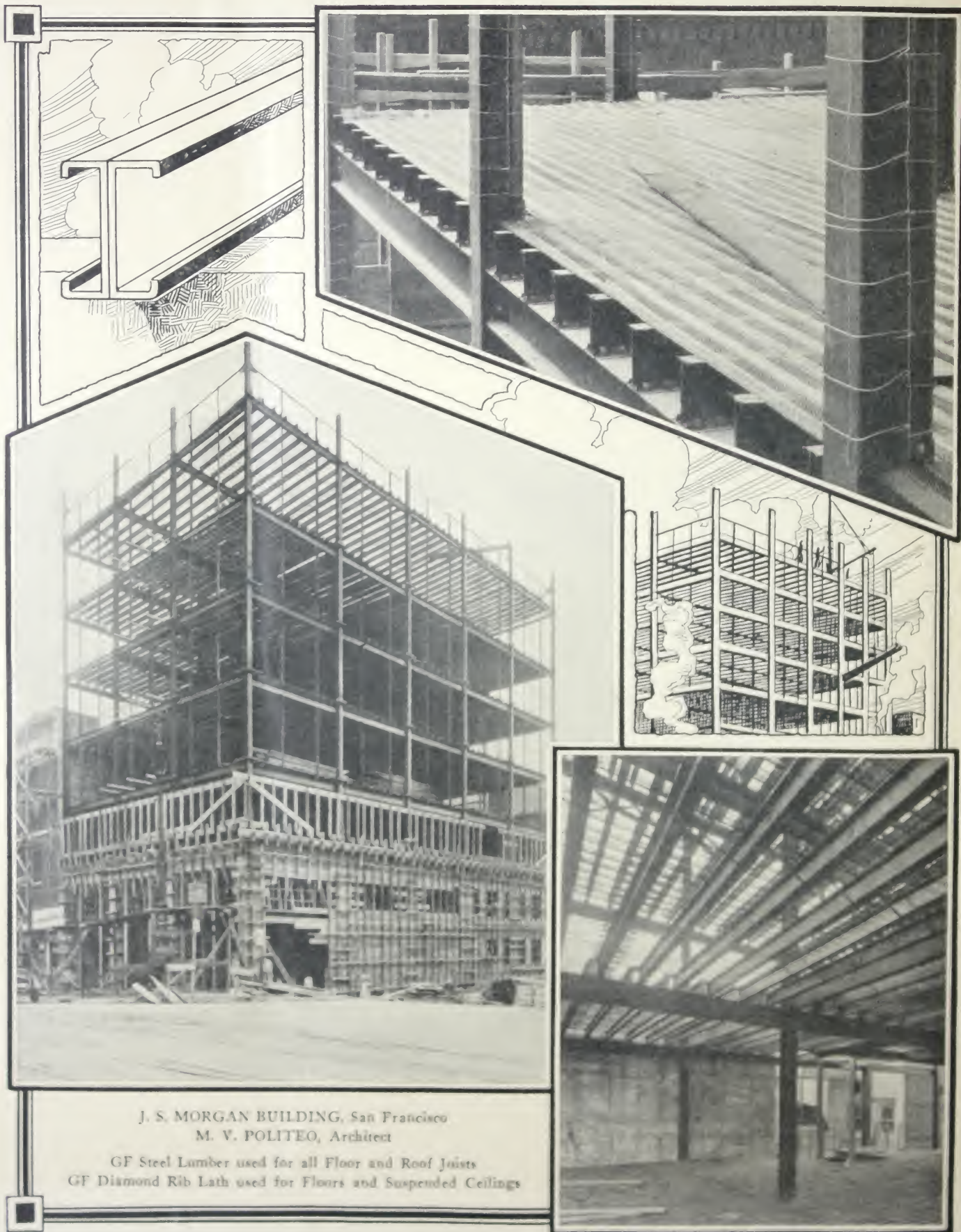
**THE GENERAL FIREPROOFING COMPANY**  
YOUNGSTOWN, OHIO

BRANCHES

SYRACUSE	CHICAGO	BOSTON	MILWAUKEE	KANSAS CITY	MINNEAPOLIS	ST. LOUIS	OMAHA
SAN FRANCISCO	PHILADELPHIA	NEW YORK	ATLANTA	CLEVELAND	LOS ANGELES		

Export Department, 438 Broadway, New York City Cable Address—"Genfire New York"







# GF Steel Lumber

## For Economical Fire-Safe Construction

**F**OR light occupancy buildings, hotels, apartments, office buildings, public buildings and residences no other fire resistive building material utilized for the structural elements of floors and partitions can compare with GF Steel Lumber on a basis of true construction economy.

Being a shop fabricated material of known integrity and strength, with installation following the simplest possible design for fire-safe construction, GF Steel Lumber affords a rapid and safe means of construction that practically eliminates the chance of failure and the necessity for close supervision that is characteristic of more complicated methods of floor construction.

GF Steel Lumber reduces the dead load on all structural supporting members of the building thereby effecting true economy of material and labor from footings to roof. A GF Steel Lumber floor is approximately 50% lighter in dead weight than any other type of fire-safe construction of equal strength.

Employing a flat concrete slab of minimum thickness, GF Steel Lumber Floor Construction reduces the great quantities of concrete that are required by other types of floor design. Construction can proceed without the interruptions or hazards caused by unfavorable weather.

GF Steel Lumber has come into widespread use and Steel Lumber installations may now be found in practically every large city of the United States and in many foreign countries.

Many cities are now giving Steel Lumber code recognition on a par with other fireproof construction and its general acceptance by architects and engineers, for the best buildings, has more than justified our claims for the material as a safe, economical, durable and fire resistive construction.

GF Steel Lumber is used in buildings of both structural steel and reinforced concrete frame and is rapidly replacing the more costly constructions such as concrete and tile floors. It is also being used for the first floors of frame residences to eliminate the basement fire hazard, and in brick or masonry homes to give fire resistive construction throughout.

Steel floor joists are laid similar to wood joists. GF Diamond Rib Metal Lath is attached to the top and bottom flanges acting as a combined form and reinforcement for the floor slab and as lath and reinforcement for the ceiling plaster. Where wood flooring is to be applied over the slab, wood nailing strips are secured to the top flanges of the joists, and the intervening space filled with concrete to the tops of sleepers.

This construction eliminates all combustible materials. The result is the lightest fire resistive floor construction possible.

JD 89-137392-72 F



GF Steel Lumber floors cost little more than combustible wood floors. All sections are shipped, cut to size and ready to place in position and are more conveniently handled than wood joists.

The value of GF Steel Lumber in reducing the enormous annual fire losses and the economic necessity for bringing the cost of fireproof construction within the range of the average builder has been proven by the substantial demand for this material.

GF Steel Lumber is made from a high grade basic open hearth steel and is rolled from slab to finished product under strict supervision. All joist sections are formed from two uniform channel sections, formed cold from evenly rolled and uniformly thick strips. These channel sections are electrically spot welded together to form the complete joist.

All sections can be furnished in maximum shipping lengths, eliminating all splicing.

The cold forming of GF Steel Lumber Sections from flat strips of uniform thickness eliminates all possibility of distortion from internal stresses when subjected to high temperature. This uniformity of thickness and the uniformity of the steel assures maximum strength at comparatively high temperatures. Actual tests have proven this and have indicated the superiority of GF Steel Lumber for all fireproof construction.

The manufacturing process which gives GF Steel Lumber a greater fibre stress and uniformity, cannot be adapted to the production of heavy structural steel sections.

In GF Steel Lumber the builder now has an ideal shop fabricated product which can be readily transported and which can be placed in the building as soon as received without further fitting.

The data given herein has been very carefully compiled and is based on an exact knowledge of the engineering and manufacturing features and a thorough experience in the actual use of Steel Lumber in the construction of all classes of buildings.

The strength of a GF Steel Joist is ample for the purpose intended. All tables in this book are computed with a factor of safety of four and a fibre stress of 16,000 lbs. per square inch.

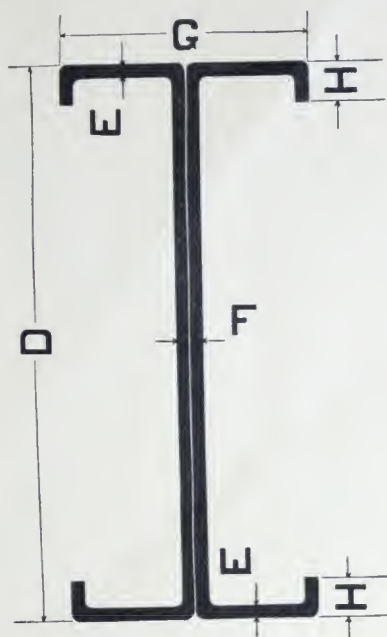
All shapes indicated in this publication are standard and can be furnished promptly in desired lengths.

Our Engineering Service Department will gladly prepare estimates or suggested designs for architects or engineers and will furnish any specific information on request.





## Properties of GF Steel Joists



Depth	Wt. per Foot	Area of Sect.	Thickness of Metal		Width of Flanges		Moment of Iner.	Section Modulus	Depth
			E	F	G	H			
In.	Lbs.	Sq. In.	In.	In.	In.	In.	I	S	In.
4"	3.7	1.08	.072	.144	3	1/2	2.60	1.30	4"
5"	4.2	1.22	.072	.144	3	1/2	4.38	1.75	5"
6"	4.7	1.38	.072	.144	3	1/2	6.90	2.30	6"
7"	5.5	1.62	.072	.144	3 1/2	5/8	11.20	3.20	7"
8"	6.1	1.80	.072	.144	4	5/8	16.80	4.20	8"
9"	7.0	2.06	.075	.150	4	3/4	23.85	5.30	9"
10"	8.0	2.35	.078	.156	4 1/2	3/4	33.25	6.65	10"
11"	9.5	2.80	.086	.172	4 1/2	3/4	46.20	8.40	11"
12"	10.5	3.10	.090	.180	4 1/2	3/4	60.00	10.00	12"

For convenience in identification and specifying, sections are designated by their depth and weight, i. e.,

10"—8 lb. I

Sections are furnished only on catalog weights and to an allowable variation of 2 1/2% from published weights.

## Loading Tables for GF Steel Joists

Total Safe Loads in Pounds Uniformly Distributed.

Fibre Stress 16,000 Lbs. per Square Inch.

GF Steel Joist Floors Weigh About 40 Pounds Per Square Foot.

To determine the Available Live Load Deduct Weight of Floor Construction.

Size	4"	5"	6"	7"	8"	9"	10"	11"	12"	Size
Wt.	3.7	4.2	4.7	5.5	6.1	7.0	8.0	9.5	10.5	Wt.
6'	2311	....	....	....	....	....	....	....	....	6'
7'	1981	2667	....	....	....	....	....	....	....	7'
8'	1733	2333	3067	....	....	....	....	....	....	8'
9'	1541	2074	2726	3793	....	....	....	....	....	9'
10'	1387	1867	2453	3413	....	....	....	....	....	10'
11'	1261	1697	2230	3103	....	....	....	....	....	11'
12'	1155	1555	2045	2845	3733	....	....	....	....	12'
13'	....	1436	1887	2626	3446	4348	....	....	....	13'
14'	....	1333	1752	2438	3200	4038	....	....	....	14'
15'	....	....	2635	2275	2986	3769	4729	5973	7111	15'
16'	....	....	1533	2133	2800	3533	4433	5600	6666	16'
17'	....	....	....	2008	2635	3325	4172	5271	6275	17'
18'	....	....	....	1896	2489	3141	3940	4978	5926	18'
19'	....	....	....	....	2358	2975	3733	4716	5614	19'
20'	....	....	....	....	2240	2827	3546	4480	5333	20'
21'	....	....	....	....	2133	2692	3378	4267	5079	21'
22'	....	....	....	....	....	2570	3224	4073	4848	22'
23'	....	....	....	....	....	2458	3084	3896	4638	23'
24'	....	....	....	....	....	....	2955	3733	4445	24'
25'	....	....	....	....	....	....	2837	3584	4267	25'
26'	....	....	....	....	....	....	2728	3446	4102	26'

Note—For loads below horizontal lines, deflection theoretically is greater than the allowable limit for plastered ceilings (1/360 of the span.)

The above safe loads assume that the joists are braced laterally as in the standard floor construction.

Total Safe Loads in Pounds Uniformly Distributed.

Fibre Stress Does Not Exceed 16,000 Lbs. Per Sq. Inch

Loads Given Will Not Cause Deflection Greater

Than 1/360 of the Span.

GF Steel Joist Floors Weigh About 40 Pounds Per Square Foot.

To determine Available Live Load Deduct Weight of Floor Construction.

Size	4"	5"	6"	7"	8"	9"	10"	11"	12"	Size
Wt.	3.7	4.2	4.7	5.5	6.1	7.0	8.0	9.5	10.5	Wt.
6'	2311	....	....	....	....	....	....	....	....	6'
7'	1981	2667	....	....	....	....	....	....	....	7'
8'	1733	2333	3067	....	....	....	....	....	....	8'
9'	1380	2074	2726	3793	....	....	....	....	....	9'
10'	1118	1867	2453	3413	....	....	....	....	....	10'
11'	922	1550	2230	3103	....	....	....	....	....	11'
12'	773	1305	2045	2845	3733	....	....	....	....	12'
13'	....	1113	1754	2626	3446	4348	....	....	....	13'
14'	....	958	1511	2438	3200	4038	....	....	....	14'
15'	....	....	1318	2135	2986	3769	4729	5973	7111	15'
16'	....	....	1159	1880	2800	3533	4433	5600	6666	16'
17'	....	....	....	1669	2500	3325	4172	5271	6275	17'
18'	....	....	....	1481	2225	3141	3940	4978	5926	18'
19'	....	....	....	....	2000	2844	3733	4716	5614	19'
20'	....	....	....	....	1800	2562	3546	4480	5333	20'
21'	....	....	....	....	1637	2322	3250	4267	5079	21'
22'	....	....	....	....	....	2120	2942	4073	4848	22'
23'	....	....	....	....	....	1937	2700	3752	4638	23'
24'	....	....	....	....	....	....	2475	3446	4445	24'
25'	....	....	....	....	....	....	2285	3181	4133	25'
26'	....	....	....	....	....	....	2115	2930	3820	26'

Note—The above safe loads assume that the joists are braced laterally as in the standard floor construction.



## Loading Tables for GF Steel Joists—(Continued)

Total Safe Loads in Pounds Per Square Foot of Floor Area.

To Determine Available Live Load Deduct Weight of Floor Construction.

Fibre Stress Does Not Exceed 16,000 Lbs. Per Sq. Inch.

Loads Given Will Not Cause Deflection Greater Than 1/360 of the Span.

GF Standard Steel Joist Floors Weigh About 40 Lbs. Per Sq. Foot.

JOISTS SPACED 12" ON CENTERS

Size	4"	5"	6"	7"	8"	9"	10"	11"	12"	Size
Wt.	3.7	4.2	4.7	5.5	6.1	7.0	8.0	9.5	10.5	Wt.
6'	385	....	....	....	....	....	....	....	....	6'
7'	283	381	....	....	....	....	....	....	....	7'
8'	217	292	383	....	....	....	....	....	....	8'
9'	154	231	303	421	....	....	....	....	....	9'
10'	112	187	245	341	....	....	....	....	....	10'
11'	84	141	203	282	....	....	....	....	....	11'
12'	64	109	170	237	311	....	....	....	....	12'
13'	....	86	134	202	265	334	....	....	....	13'
14'	....	68	108	174	229	288	....	....	....	14'
15'	....	....	88	142	199	251	315	398	474	15'
16'	....	....	73	118	175	221	277	350	417	16'
17'	....	....	....	98	147	196	246	310	369	17'
18'	....	....	....	82	124	175	219	277	329	18'
19'	....	....	....	....	105	150	197	248	295	19'
20'	....	....	....	....	90	128	177	224	267	20'
21'	....	....	....	....	78	111	155	203	242	21'
22'	....	....	....	....	....	96	134	185	220	22'
23'	....	....	....	....	....	84	117	164	202	23'
24'	....	....	....	....	....	....	103	144	185	24'
25'	....	....	....	....	....	....	91	127	165	25'
26'	....	....	....	....	....	....	81	113	147	26'

JOISTS SPACED 15 3/4" ON CENTERS

Size	4"	5"	6"	7"	8"	9"	10"	11"	12"	Size
Wt.	3.7	4.2	4.7	5.5	6.1	7.0	8.0	9.5	10.5	Wt.
6'	289	....	....	....	....	....	....	....	....	6'
7'	212	286	....	....	....	....	....	....	....	7'
8'	163	219	287	....	....	....	....	....	....	8'
9'	116	173	227	316	....	....	....	....	....	9'
10'	84	140	184	256	....	....	....	....	....	10'
11'	63	106	152	212	....	....	....	....	....	11'
12'	48	82	128	178	234	....	....	....	....	12'
13'	....	64	101	152	199	251	....	....	....	13'
14'	....	51	81	130	172	216	....	....	....	14'
15'	....	....	66	107	150	188	236	299	356	15'
16'	....	....	54	88	131	166	208	262	313	16'
17'	....	....	....	74	110	147	184	232	277	17'
18'	....	....	....	62	93	131	164	208	247	18'
19'	....	....	....	....	79	113	147	186	221	19'
20'	....	....	....	....	68	96	133	168	200	20'
21'	....	....	....	....	58	83	116	152	182	21'
22'	....	....	....	....	....	72	101	139	165	22'
23'	....	....	....	....	....	63	88	123	151	23'
24'	....	....	....	....	....	....	77	108	139	24'
25'	....	....	....	....	....	....	68	95	124	25'
26'	....	....	....	....	....	....	61	85	110	26'

JOISTS SPACED 19" ON CENTERS

Size	4"	5"	6"	7"	8"	9"	10"	11"	12"	Size
Wt.	3.7	4.2	4.7	5.5	6.1	7.0	8.0	9.5	10.5	Wt.
6'	244	....	....	....	....	....	....	....	....	6'
7'	179	240	....	....	....	....	....	....	....	7'
8'	137	184	241	....	....	....	....	....	....	8'
9'	97	146	191	266	....	....	....	....	....	9'
10'	71	118	155	216	....	....	....	....	....	10'
11'	53	89	128	178	....	....	....	....	....	11'
12'	40	69	107	149	196	....	....	....	....	12'
13'	....	54	85	127	167	211	....	....	....	13'
14'	....	43	68	110	145	182	....	....	....	14'
15'	....	....	55	90	126	159	199	252	299	15'
16'	....	....	46	74	110	140	175	221	263	16'
17'	....	....	....	62	93	124	155	196	233	17'
18'	....	....	....	52	78	110	138	175	208	18'
19'	....	....	....	....	66	95	124	157	186	19'
20'	....	....	....	....	57	81	112	141	169	20'
21'	....	....	....	....	49	70	98	128	153	21'
22'	....	....	....	....	....	61	85	117	139	22'
23'	....	....	....	....	....	53	74	103	127	23'
24'	....	....	....	....	....	....	65	91	117	24'
25'	....	....	....	....	....	....	57	80	104	25'
26'	....	....	....	....	....	....	51	71	93	26'

JOISTS SPACED 23 1/2" ON CENTERS

Size	4"	5"	6"	7"	8"	9"	10"	11"	12"	Size
Wt.	3.7	4.2	4.7	5.5	6.1	7.0	8.0	9.5	10.5	Wt.
6'	193	....	....	....	....	....	....	....	....	6'
7'	142	191	....	....	....	....	....	....	....	7'
8'	108	146	192	....	....	....	....	....	....	8'
9'	77	115	152	211	....	....	....	....	....	9'
10'	56	94	123	171	....	....	....	....	....	10'
11'	42	70	102	141	....	....	....	....	....	11'
12'	32	54	85	119	156	....	....	....	....	12'
13'	....	43	67	101	133	167	....	....	....	13'
14'	....	34	54	87	115	144	....	....	....	14'
15'	....	....	44	71	100	126	158	199	237	15'
16'	....	....	37	59	88	111	139	175	209	16'
17'	....	....	....	49	74	98	123	155	185	17'
18'	....	....	....	41	62	88	110	139	165	18'
19'	....	....	....	....	53	75	99	124	148	19'
20'	....	....	....	....	45	64	89	112	134	20'
21'	....	....	....	....	39	56	78	102	121	21'
22'	....	....	....	....	....	48	67	93	110	22'
23'	....	....	....	....	....	42	59	82	101	23'
24'	....	....	....	....	....	....	52	72	93	24'
25'	....	....	....	....	....	....	46	64	83	25'
26'	....	....	....	....	....	....	41	57	74	26'

Note—The above loads assume that joists are braced laterally as in standard steel lumber floor construction.



# GF Steel Channel Studs

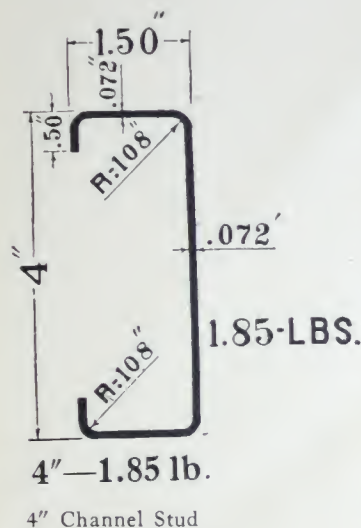
## LOADING TABLE

Total Safe Load in Pounds for Each Stud. Using Column Formula for Fibre Stress.

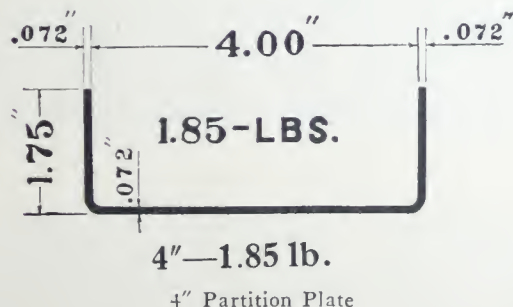
$$f = 19,000 \text{ lb.} - \frac{100l}{r} \text{ with Max. of 13000 lb. per Sq. Inch}$$

R, About Axis A-A is for Studs Plastered Both Sides.

R, About Axis B-B is for Unplastered Studs.



GF Steel Channel Studs are used as supporting members for all bearing and non-bearing partitions in steel lumber construction. Finished with GF Diamond Rib Lath and plaster they form a non-combustible and crack-proof partition. GF Steel Channel Studs are anchored at floor and ceiling by riveting or bolting the ends to GF Steel Partition Plate.

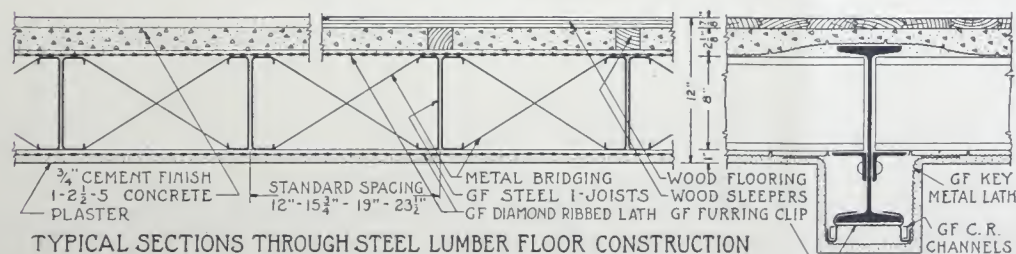


Axis A-A Plastered Both Sides			Axis B-B Unsupported Studs			
Size	4" C	4" I	4" C	4" I	Size	
Weight	1.85	3.7	1.85	3.7	Weight	
Clear Height in Feet	2	.....	6980	13975	2	
	3	.....	6680	13975	3	
	4	.....	5500	13200	4	
	5	.....	<u>4320</u>	11420	5	
	6	6988	13975	3140	9640	6
	7	6988	13975	1980	<u>7840</u>	7
	8	6864	13728	806	5988	8
	9	6425	12850	.....	4200	9
	10	6025	12050	.....	2370	10
	11	5600	11200	.....	.....	11
	12	5180	10360	.....	.....	12
	13	4775	9550	.....	.....	13
	14	4360	8720	.....	.....	14
	15	<u>3925</u>	<u>7850</u>	.....	.....	15
	16	3510	7020	.....	.....	16
	17	3090	6180	.....	.....	17
	18	2685	5370	.....	.....	18
	19	2260	4520	.....	.....	19
	20	1830	3660	.....	.....	20

Safe load values above horizontal lines are for ratios of  $l/r$  not over 120.

No loads given for ratios of  $l/r$  greater than 200.

## Construction Details

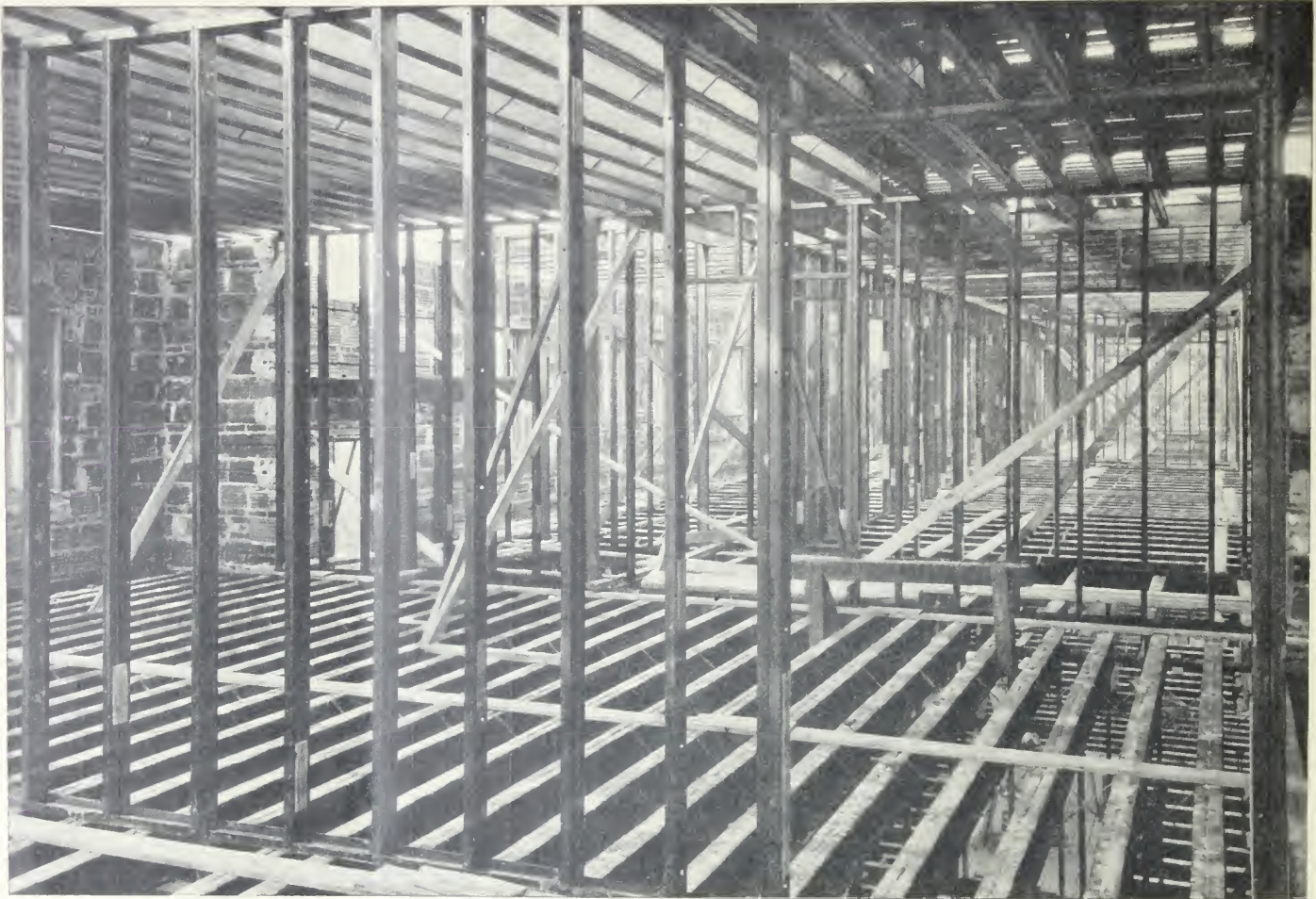


### Standard Steel Joist Floor Construction

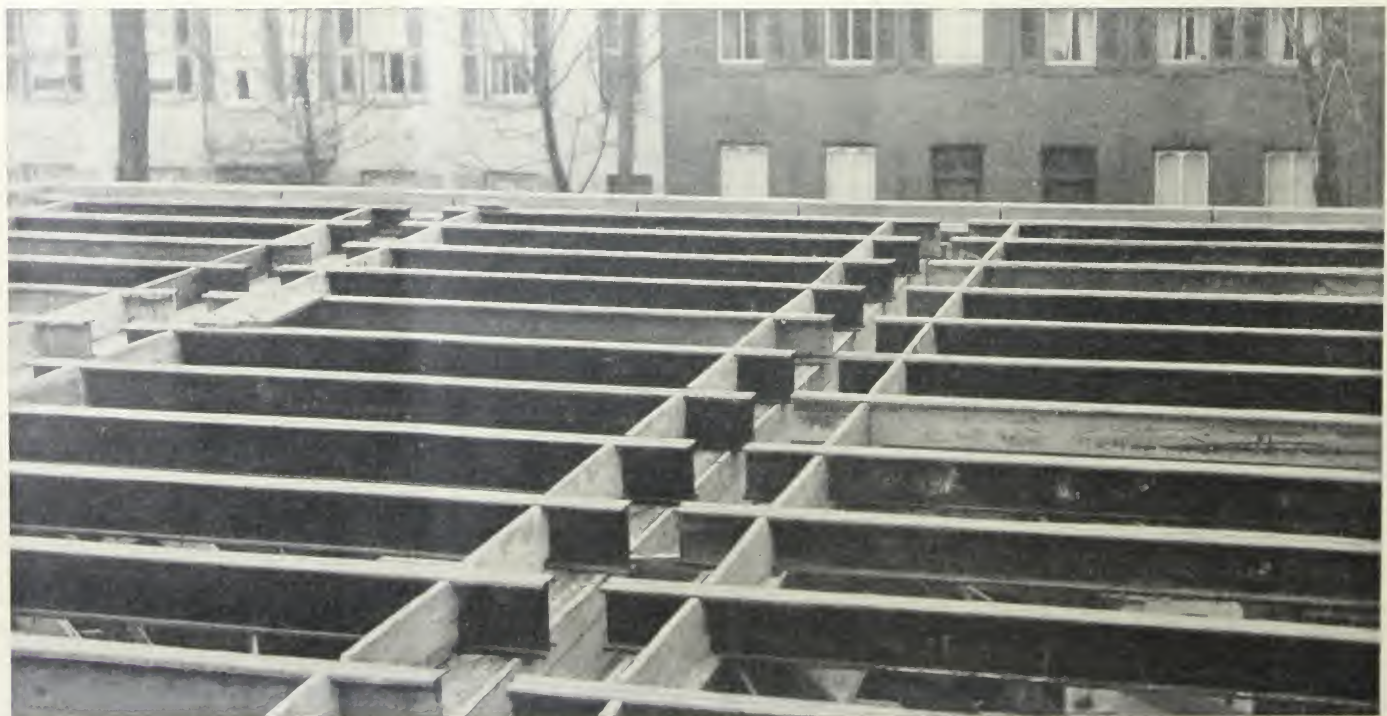
This cross section shows the details of the standard steel joist floor construction with various floor finishes. The steel floor reinforcement is placed on top of the joists and securely fastened to each joist by using large headed roofing nails or spring wire lath clips. In case of a wood floor finish a nailing strip is placed on top of the lath

reinforcement and secured to the joist. Concrete is then placed on top as shown. Ceiling lath is fastened to the bottom of the joists by using spring wire lath clips not more than 9" on centers. The standard construction for a first class fire-safe floor calls for a  $\frac{7}{8}$ " thickness of plaster.





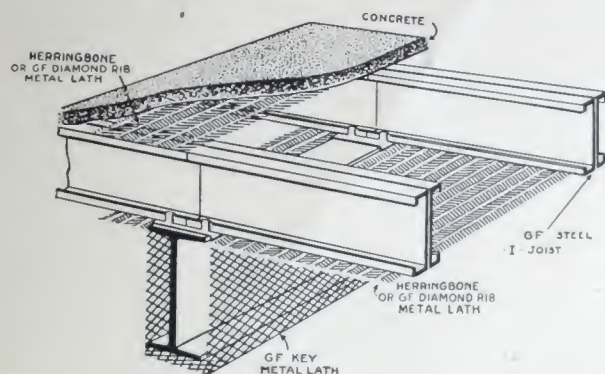
E. G. SPINKS & CO., Indianapolis, Ind. GF Steel Lumber for Floor Joists and Studding



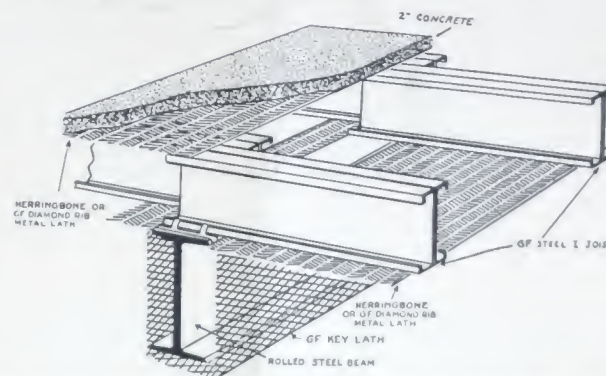
STEEL LUMBER FOR FLOOR JOISTS IN Y. M. C. A., Hagerstown, Md. Showing Method of Framing into Concrete Beam  
Architects—C. E. Koutz, F. J. Mack and A. J. Klinkhart.  
Engineers—J. B. Ferguson Co. Contractor—George B. McWolf.



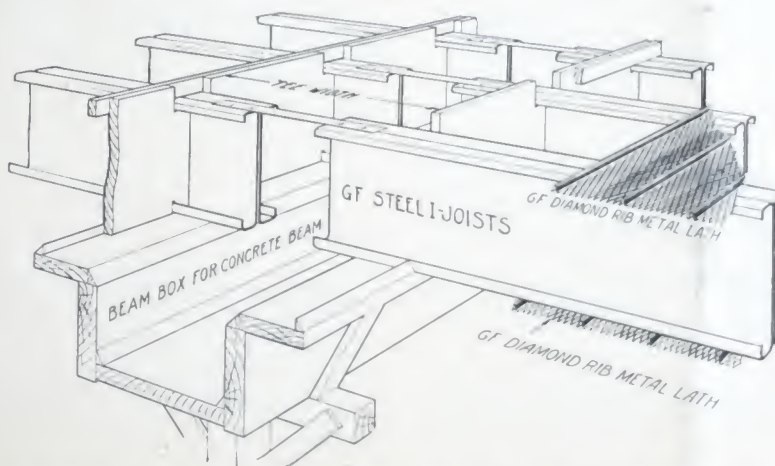
## Construction Details—(Continued)



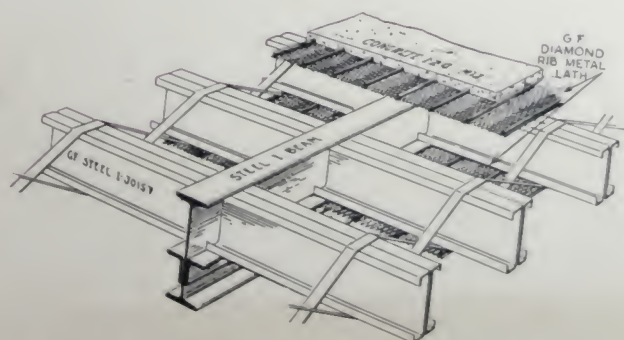
GF Steel Joists, on Steel I-beam, butted end to end giving a true alignment. Attached to beams with GF Beam Clips.



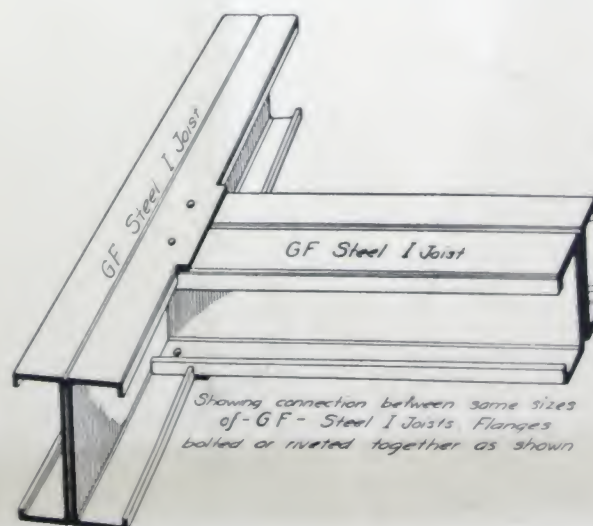
GF Steel Joists lapped giving bearing full width of I-beam. Attached to beams with GF Beam Clips.



Method of erecting forms for Concrete T-beam with GF Steel Joists framed into beam forms.



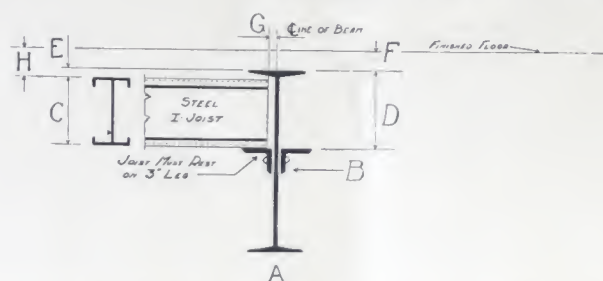
Method of erecting GF Steel Joists on Angle Ledges riveted to I-beam.



Method of framing around small openings.



## Construction Details—(Continued)



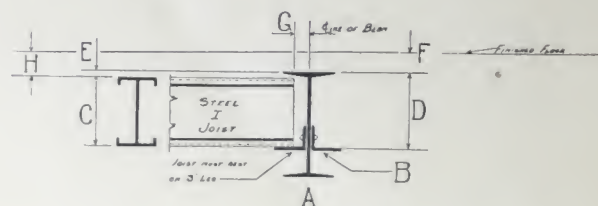
### Locating Shelf Angle for Joist Bearing

The position of shelf angle on steel beam should be so located that top of joist will come close to underside of beam flange.

Table shows the maximum depth of steel joist that will frame into different structural beams when vertical leg of shelf angle extends downward as shown in sketch. The dimensions given allow ample clearance at end of joist for quick and easy erection.

#### Framing Dimensions for Shelf Angles When Leg of Angle is Turned Down

Standard I Beams	Bethlehem I Beams	Size of Angles	Max. Depth Steel Joist	Distance From				Clearance at End of Joist	Thickness of Standard Floor
				Angle to Top of Beam	Joist to Top of Beam	Beam to Finished Floor			
A	A	B	C	D	E	F	G	H	
8" @ 18.4 lbs.	8" @ 17.5 lbs.	3x2 1/2 x 1/4	4"	4 3/4"	3"	2 1/2"	3 3/4"	2 7/8"	
9" @ 21.8 lbs.	9" @ 20.0 lbs.	3x2 1/2 x 1/4	5"	5 3/4"	3"	2 1/2"	3 3/4"	2 7/8"	
10" @ 25.4 lbs.	10" @ 23.5 lbs.	3x2 1/2 x 1/4	6"	6 3/4"	3"	2 1/2"	3 3/4"	2 7/8"	
12" @ 31.8 lbs.	12" @ 28.5 lbs.	3x2 1/2 x 1/4	7"	8"	1"	1 1/2"	3 3/4"	2 7/8"	
15" @ 42.9 lbs.	15" @ 38.0 lbs.	3x2 1/2 x 1/4	10"	11"	1"	1 1/2"	3 3/4"	2 7/8"	
18" @ 54.7 lbs.	18" @ 48.5 lbs.	3x2 1/2 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	3 3/4"	2 7/8"	
20" @ 65.4 lbs.	20" @ 59.0 lbs.	3x2 1/2 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	3 3/4"	2 7/8"	
24" @ 79.9 lbs.	24" @ 73.0 lbs.	3x2 1/2 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	3 3/4"	2 7/8"	
	26" @ 90.0 lbs.	3x3 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	3 3/4"	2 7/8"	



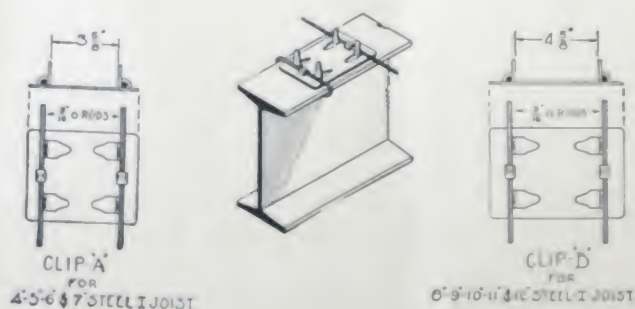
### Locating Shelf Angle for Joist Bearing

When depth of joists approximates the depth of steel beam so that vertical leg of shelf angle cannot extend downward, the shelf angles are reversed as shown in sketch above. In this case the length of joists should be slightly shorter than in detail on preceding page to allow clearance for thickness of angle and protruding rivet heads.

#### Framing Dimensions for Shelf Angles When Leg of Angle is Turned Up

Standard I Beams	Bethlehem I Beams	Size of Angles	Max. Depth Steel Joist	Distance From				Clearance at End of Joist	Thickness of Standard Floor
				Angle to Top of Beam	Joist to Top of Beam	Beam to Finished Floor			
A	A	B	C	D	E	F	G	H	
8" @ 18.4 lbs.	8" @ 17.5 lbs.	3x2 1/2 x 1/4	6"	6 3/4"	3"	2 1/2"	1 1/4"	2 7/8"	
9" @ 21.8 lbs.	9" @ 20.0 lbs.	3x2 1/2 x 1/4	7"	7 3/4"	3"	2 1/2"	1 1/4"	2 7/8"	
10" @ 25.4 lbs.	10" @ 23.5 lbs.	3x2 1/2 x 1/4	8"	8 3/4"	3"	2 1/2"	1 1/4"	2 7/8"	
12" @ 31.8 lbs.	12" @ 28.5 lbs.	3x2 1/2 x 1/4	10"	10 3/4"	3"	2 1/2"	1 1/4"	2 7/8"	
15" @ 42.9 lbs.	15" @ 38.0 lbs.	3x2 1/2 x 1/4	12"	12 7/8"	3"	2"	1 1/4"	2 7/8"	
18" @ 54.7 lbs.	18" @ 48.5 lbs.	3x2 1/2 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	1 1/4"	2 7/8"	
20" @ 65.4 lbs.	20" @ 59.0 lbs.	3x2 1/2 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	1 1/4"	2 7/8"	
24" @ 79.9 lbs.	24" @ 73.0 lbs.	3x2 1/2 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	1 1/4"	2 7/8"	
	26" @ 90.0 lbs.	3x3 x 1/4	12"	13 1/4"	1 1/4"	1 3/4"	1 1/4"	2 7/8"	

### Beam Clips for GF Steel Lumber



To securely anchor GF Steel Joists to I-beams the use of GF Beam Clips is recommended. The clips are attached to the beam by bending the ends of the steel rods down and under the beam flanges. After the Steel Joist is placed in position the prongs of the clip are driven down against the flanges of the joist.

### Beam Clips for Various Sizes of Steel I Joists and Structural Steel Beams

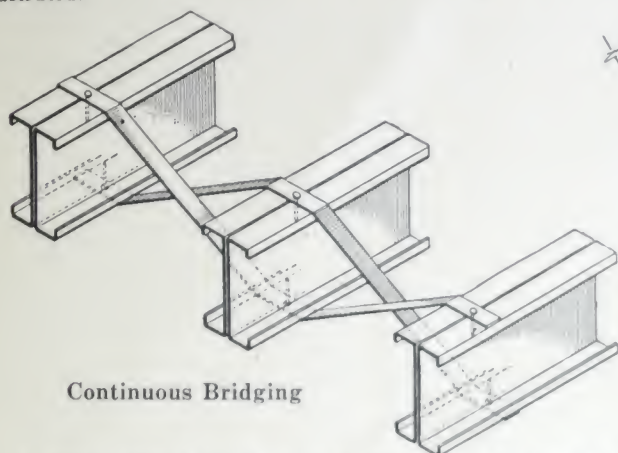
Beam Clip designation Mark	Length of Rods	Structural Steel Beams		Weight per 100 Pieces A	Weight per 100 Pieces B
		Standard	Bethlehem		
A B	9"	10"—I 12"—I 15"—I	8"—I 9"—I	80	90
A B	10"	18"—I 20"—I	10"—I 12"—I	80	90
A B	11"	42"—I	15"—I	80	90
A B	12"	.....	18"—I 20"—I	85	95
A B	13"	.....	24"—I	85	95
A B	14"	.....	26"—I 28"—I	85	95

When ordering beam clips give A or B designation mark, according to size of joist, also length of rods as A—9" or B—9".



## Strap Bridging for GF Steel Lumber

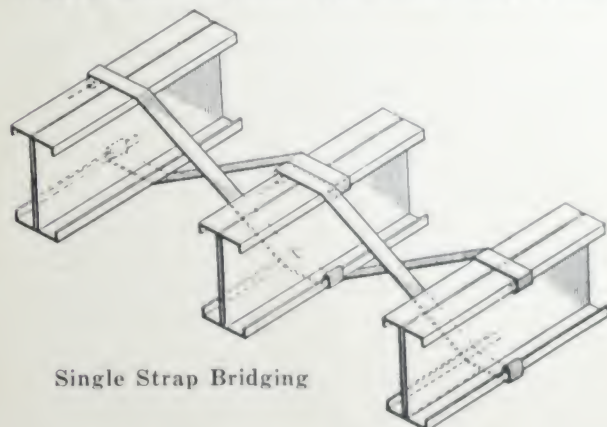
Two types of strap bridging are used with GF Steel Lumber Joists. One is the Continuous type which makes use of a continuous strip of 1" 20-gauge steel woven through the joists as illustrated.



Continuous Bridging

A second type of bridging, is known as Single Strap Bridging. This makes use of a single strap properly shaped to fit over the top flange of one joist and under the bottom flange of the next. Four different lengths are available to conform to different joist spacings and sizes. These are given in following table.

Bridging should be placed approximately every 6 feet.



Single Strap Bridging

### Single Strap Bridging

Designation Letter for Standard Bridging Lengths

Strap A—34½" long.

Strap C—27½" long.

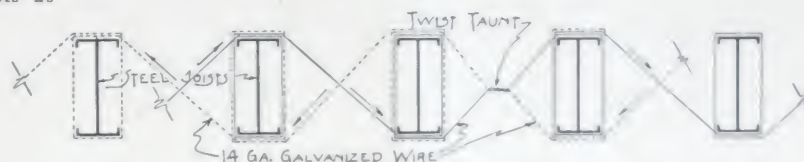
Strap B—31½" long.

Strap D—24" long.

Steel Joists		Spacing of Joists—Center to Center			
Size	Weight	12"	16"	19"	24"
4	3.7	D	D	C	B
5	4.3	D	D	C	B
6	4.9	D	D	C	B
7	5.8	D	D	C	B
8	6.8	D	C	C	A
9	7.7	D	C	B	A
10	8.7	D	C	B	A
10	9.5	C	C	B	A
11	10.7	C	B	B	A
12	12.0	C	B	B	A

When ordering, give designation letter as "Strap 'A'."

## Wire Bridging for GF Steel Lumber



Continuous Wire Cross Bridging

Galvanized Steel Wire, 14 gauge, makes an economical and strong type of bridging for GF Steel Lumber. It is quickly applied and when twisted tightly holds the joists firmly in place and helps to distribute and equalize the loading.

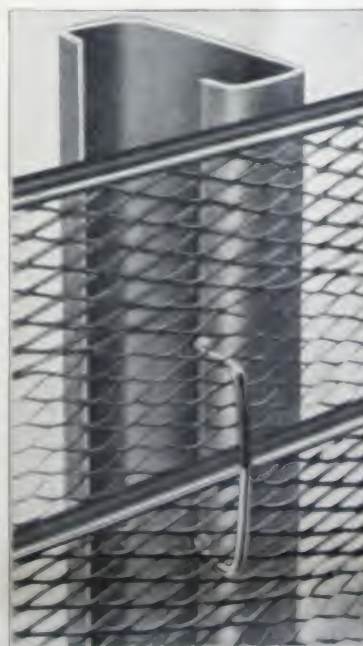
Two types are in use, the Continuous Wire Bridging which is wrapped around and woven back and forth through a series of joists, and the Single Wire Bridging which is used in a similar manner on two adjacent joists only.

The method of applying and tightening both types of bridging is clearly shown in the accompanying sketches.



Single Wire Cross Bridging

NOTE: 60 feet of 14 gauge galvanized wire weighs approximately one pound.



## W-1 Wall Clips

For attaching Herrington or Diamond Rib metal lath to GF Steel Lumber on exterior or interior walls or partitions.

Used only on 4" I's or Channel Studs.

Made from No. 10 gauge spring wire. Will not break or pull loose.

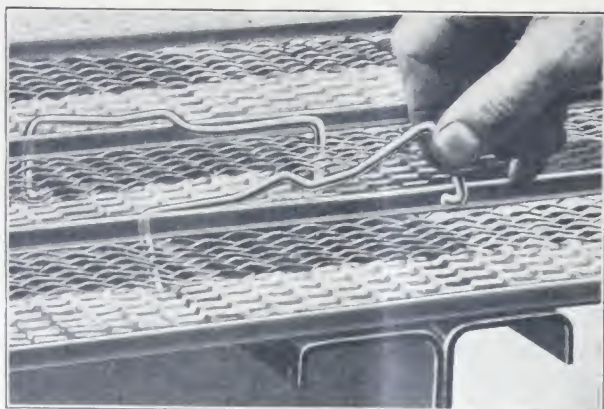
Used approximately 9" c. c.

Required for 1 ton of channel, used on one side, 1500 pcs.

Weight per 1000 pcs. 24 lbs.



## GF Lath Clips for Steel Joists



For Floors or Ceilings with Diamond Rib or Herringbone Lath

### FURNISHED IN FOLLOWING SIZES

Style	Used On		Wt. Per M Loose
L-1	4"-5"-6"	Joist 3" Flange	28 lbs.
L-2	7"	Joist 3½" Flange	29 lbs.
L-3	8"-9"	Joist 4" Flange	31 lbs.
L-4	10"-11"-12"	Joist 4½" Flange	34 lbs.

### NUMBER OF CLIPS REQUIRED PER TON OF JOISTS

	@ 9" c-c	@ 12" c-c		@ 9" c-c	@ 12" c-c
4" Joist	758 pcs.	568 pcs.	9" Joist	400 pcs.	300 pcs.
5" "	667 pcs.	500 pcs.	10" "	350 pcs.	262 pcs.
6" "	597 pcs.	447 pcs.	11" "	296 pcs.	222 pcs.
7" "	510 pcs.	382 pcs.	12" "	268 pcs.	200 pcs.
8" "	456 pcs.	344 pcs.	5% allowed for waste.		

Use clips 9" c-c for attaching ceiling lath—12" c-c for floor lath.

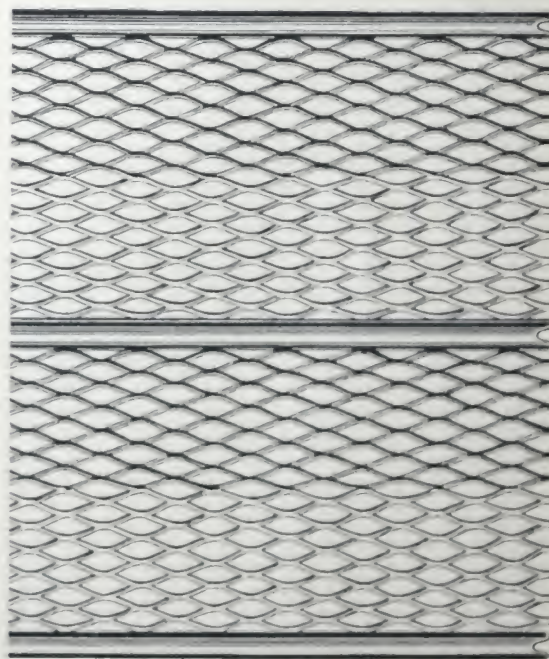
## GF Diamond Rib Lath for Steel Lumber Construction

THE greatest economy in the use of steel lumber is obtained by using the largest suitable section on the widest standard spacing, the maximum being 23½ inches. A portion of the saving thus available will be lost if the lath used to support the floor sags between joists.

Many laths used with steel lumber will deflect or sag over this span, incurring a loss to the contractor in the additional concrete necessary to fill the depressions and form a level floor.

GF Diamond Rib Lath is especially adapted to maximum spacing of joists and studding; its longitudinal reinforcing ribs giving maximum rigidity between supports. This construction is more economical than the use of a less rigid lath at a lower cost. The expense of filling the depressions and the additional concrete required amounts to more than the extra cost of the more rigid lath.

Loss of concrete by dripping through the lath is another waste. Due to the small size of the Diamond mesh, this will be minimized where GF Diamond Rib Lath is used. A perfect key is formed without waste of plaster where this lath is used for ceilings.



GF Diamond Rib Lath

### Shipping Data

Sheets 24" wide (c-c outside ribs) x 96" long.  
Ribs spaced 4.8 c-c.  
Area of Sheet 1 7-9 square yards.  
9 sheets per bundle.  
16 yards per bundle.

### Diamond Rib Lath of Armco Ingot Iron

Diamond Rib Lath can be furnished of Armco Ingot Iron as follows:

Weight 4.8 lbs.	Mill shipment only, 2,000 yards minimum.
Weight 4.0 lbs.	In stock.
Weight 3.6 lbs.	In stock.
Weight 3.3 lbs.	Mill shipment only, 3,500 yards minimum.

### Maximum Spans for GF Diamond Rib Lath in Steel Lumber Construction

Weight Per Sq. Yd.	Floors Over Joist	Ceilings Under Joist	Partitions
4.8 lbs.	30"	—	36" and up
4.0	24"	—	36" and up
3.6	19" or 24"	24"	30"
3.0	16" or 19"	19"	24"